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MONTANA STATE HIGHWAY COMMISSION
PLANNING SURVEY DIVISION
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ECONOMIC ANALYSIS OF ALTERNATE INTERSTATE HIGHWAY ROUTINGS IN VICINITY OF MILES CITY AND TERRY

FOREWORD

An economic analysis of this type is prepared for the purpose of comparing the relative merit of alternate routings of proposed highways. In analyzing the alternate routes, consideration is given to two principal factors: the relative cost of constructing and maintaining each route, and the relative cost of service to traffic as measured by the estimated operating costs of vehicles traveling via each alternate.

In a hypothetical case, it might be possible to locate the highway at some distance from population centers and developed areas where lower right-of-way costs and the absence of separation structures would provide a lower overall construction cost. Such a location, however, might serve only a limited amount of traffic and would produce additional travel distance with consequent higher operating costs for the highway user. In the final analysis, the construction and maintenance costs must be considered along with the operating costs in order to determine the alternate route which would be most beneficial from the overall standpoint.

DESCRIPTION OF ROUTES

After inspecting aerial photography and making field reconnaissance surveys, the Interstate Division has selected alternate routings for a new Interstate Highway in the Miles City-Terry vicinity, as shown on the attached map. Population of principal cities are: Miles City (9,243), Terry (1,191).

One route, which will be described as the North Route, begins at a point on the north side of the Yellowstone River in the area to the west of Miles City. The projected line for this route extends in a northeasterly direction to a point of junction with Montana Highway No. 22 where an interchange will be located. The route then continues in a northeasterly direction along the north edge of the irrigated area in the vicinity of Kinsey. An interchange is located near Kinsey to provide access for traffic from this vicinity. The route continues in a northeasterly direction on the north side of the Yellowstone River to a point opposite the confluence of the Yellowstone and Powder Rivers. At this point alternate proposals contemplate either the construction of a bridge over the Yellowstone River with a continuation of the highway on the south side of the river, or a continuation of the highway on the north side of the Yellowstone River to a point beyond the present Fallon Bridge. The continuation of the route on the north side of the river would involve the construction of an interchange at the junction of the highway and the Terry-Brockway road in order to provide access to the Interstate highway at this point.

The North Route would be 58.44 miles long and would require interchanges at points north of Miles City, north of Kinsey, north of Terry and at the common terminus near the Fallon Bridge. This route has the advantage that no new bridges would be required to cross the Yellowstone River. It would also have the advantage that it would provide service for the developed area north of the river between Miles City and Kinsey. This area is served by a county road at present.

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The other alternate, which will be described as the South Route, begins at the common terminus on the north side of the Yellowstone River and west of Miles City. This route crosses the river at a point west of Miles City and skirts along the southern edge of the city. After bypassing the developed area in this vicinity, the route connects with the present highway at a point east of Miles City and follows along the same general location to a point west of Terry. The South Route then veers to the south in order to avoid the developed area around Terry and rejoins the present highway east of Terry. It continues along the present alignment to a common terminus with the North Route at a point east of the present Fallon Bridge. The South Route would require the construction of two bridges over the Yellowstone River, four interchanges in the vicinity of Miles City, and one interchange near Terry. The length of the proposed South Route is 57.25 miles.

A combination route, following the north line from a point west of Miles City to the Powder River crossing and the south line for the remainder of the distance, would be 55.97 miles long. This route would involve interchanges north of Miles City, near Kinsey, and south of Terry. Bridges over the Yellowstone River would be required at the Powder River crossing and at the Fallon crossing.

Since consideration must be given to the possibility of a crossing from the North Route to the South Route in the vicinity of the Powder River, the analysis has been divided into two separate propositions. The first proposition involves an analysis of the problem as it affects that traffic and the area between the common terminus west of Miles City and the common terminus near the Powder River crossing. The second proposition involves an analysis of the situation between the Powder River vicinity and the common terminus east of the present Fallon bridge.

The following assumptions have been made in defining the area of investigation:

1. The construction of a North Route between the terminus west of Miles City and the Powder River terminus would eliminate the necessity of constructing a Secondary System route to serve a substantial volume of traffic on the north side of the river in the region known as the Kinsey area. Since an interchange is proposed in the vicinity of Kinsey, the traffic between this area and Miles City would be able to use the Interstate highway for a great portion of its travel. It is assumed, however, that those residents in the western section of the Kinsey area would continue to use the present county road in preference to traveling a greater distance to get to the Kinsey interchange.

2. If the South Route were to be built, there would be no improvement for the traffic in the Kinsey area, and consequently, it would be necessary to construct a new Secondary road to serve this traffic. Conversely, if the North Route were built, it would be necessary to retain the present highway on the south side of the river to serve the traffic in that area. About half of this highway was built in 1934 and this portion would need reconstruction in the near future. The remaining portion of the south side highway was built between 1941 and 1954. Although it is in serviceable condition, it is necessary to compute a depreciation allowance to compensate for eventual reconstruction of this highway.

3. If the North Route were built between the Powder River vicinity and the common terminus north of the Fallon Bridge, it would be located through an area that is almost entirely undeveloped. It would not serve any local traffic of consequence, and the new highway could not be considered as replacing any needed county or Secondary System roads. It would be necessary, however, if the North Route were built in this area, to retain the present highway on the south side of the river to serve the traffic in this region. This south side highway was built in 1934, and reconstruction would be necessary in the near future.

4. If the South Route were built through this eastern section, it would follow the approximate location of the present highway, and any costs of reconstruction, as mentioned in the foregoing assumption, would be absorbed in the new Interstate highway, with the exception of the portion of the present highway which would be retained to serve Terry and immediate vicinity.

CONSTRUCTION AND MAINTENANCE COSTS

The Interstate Division has prepared an estimate of the costs of constructing the Interstate highway as a North Route and as a South Route. The total costs and the annual amortized costs for these routes are shown below:

ESTIMATED COST OF CONSTRUCTING INTERSTATE HIGHWAY
BETWEEN WESTERN TERMINUS AND POWDER RIVER TERMINUS

COST ITEM	ESTIMATED SERVICE LIFE	NORTH ROUTE		SOUTH ROUTE	
		TOTAL COST	ANNUAL COST	TOTAL COST	ANNUAL COST
Right-of-Way	50 years	$ 110,810	$ 2,216	$ 183,215	$ 3,664
Structures	50 years	3,939,700	78,794	3,440,600	68,812
Surface	20 years	2,254,570	112,728	2,072,800	103,640
Other	40 years	1,220,385	30,510	1,294,775	32,369
TOTALS		7,525,465	$ 224,248	$ 6,991,390	$ 208,485
Miles of 2 lane		39.32		34.60	
Miles of 4 lane		- - -		6.00	
TOTAL LENGTH		39.32		40.60	
Annual maintenance cost					
2 lane @ $1,500 per mile			58,980		51,900
4 lane @ $2,000 per mile			------		12,000
TOTAL			58,980		63,900
TOTAL ANNUAL COST FOR CONSTRUCTION AND MAINTENANCE			$ 283,228		$ 272,385

ESTIMATED COST OF CONSTRUCTING INTERSTATE HIGHWAY BETWEEN POWDER RIVER TERMINUS AND EASTERN TERMINUS

COST ITEM	ESTIMATED SERVICE LIFE	NORTH ROUTE TOTAL COST	NORTH ROUTE ANNUAL COST	SOUTH ROUTE TOTAL COST	SOUTH ROUTE ANNUAL COST
Right-of-Way	50 years	$ 21,400	$ 428	$ 98,825	$ 1,977
Structures	50 years	685,500	13,710	1,734,300	34,686
Surface	20 years	1,248,390	62,420	1,255,200	62,760
Other	40 years	670,820	16,771	531,200	13,280
TOTALS		2,626,110	$ 93,329	$ 3,619,525	$ 112,703
Miles of 2 lane		21.12		16.65	
Annual maintenance cost @ $1,500 per mile			31,680		24,975
TOTAL ANNUAL COST FOR CONSTRUCTION AND MAINTENANCE			$ 125,009		$ 137,678

ESTIMATED COST OF CONSTRUCTING INTERSTATE HIGHWAY THROUGHOUT ON EACH SIDE OF RIVER (EXCLUDING POWDER RIVER CROSSING)

COST ITEM	ESTIMATED SERVICE LIFE	NORTH ROUTE TOTAL COST	NORTH ROUTE ANNUAL COST	SOUTH ROUTE TOTAL COST	SOUTH ROUTE ANNUAL COST
Right-of-Way	50 years	$ 122,400	$ 2,448	$ 282,040	$ 5,641
Structures	50 years	3,653,600	73,072	5,174,900	103,498
Surface	20 years	3,398,200	169,910	3,328,000	166,400
Other	40 years	1,834,925	45,873	1,825,975	45,649
TOTALS		$ 9,009,125	$ 291,303	$ 10,610,915	321,188
Miles of 2 lane		58.44		51.25	
Miles of 4 lane		- - -		6.00	
TOTAL LENGTH		58.44		57.25	
Annual maintenance cost					
2 lane @ $1500 per mile			87,660		76,875
4 lane @ $2000 per mile			- - -		12,000
Total			87,660		88,875
TOTAL ANNUAL COST FOR CONSTRUCTION AND MAINTENANCE			$ 378,963		$ 410,063

The following summarizes the data contained in the foregoing tables:

HIGHWAY ROUTING	TOTAL COST OF CONSTRUCTION	ANNUAL COST OF MAINTENANCE & CONSTRUCTION
ON NORTH SIDE OF RIVER THROUGHOUT	$ 9,009,125	$ 378,963
ON SOUTH SIDE OF RIVER THROUGHOUT	10,610,915	410,063
ON NORTH SIDE OF RIVER TO POWDER RIVER CROSSING AND SOUTH SIDE OF RIVER TO FALLON CROSSING	11,144,990	420,907

It is evident that the Interstate highway could be constructed throughout on the north side of the Yellowstone River at the lowest total cost and the lowest annual cost for construction and maintenance.

In order to make a fair comparison of the alternate routes from overall service to traffic in the general vicinity, it is necessary to include the cost of constructing and maintaining the other roads which are also required to serve the traffic. For example, if the North Interstate Route were built, it would be necessary to reconstruct and maintain the present U. S. No. 10 highway in order to continue serving traffic on the south side of the river. Also, if the South Interstate Highway were constructed, it would be necessary to build a Secondary System road to serve the traffic on the north side of the river originating in the Kinsey area.

The following tables present an estimate of these costs:

CONSTRUCTION AND MAINTENANCE OF
SECONDARY ROAD TO SERVE KINSEY

(Chargeable against South Route)

COST ITEM	ESTIMATED SERVICE LIFE	TOTAL COST	ANNUAL COST
Right-of-Way	40 years	$ 18,700	$ 467
Structures	40 years	170,400	4,260
Surface	20 years	224,000	11,200
Other	40 years	611,800	15,295
TOTALS		$ 1,024,900	$ 31,222
Maintain 18.7 miles @ $500 per mile per year			9,350
TOTAL ANNUAL COST FOR CONSTRUCTION AND MAINTENANCE			$ 40,572

RECONSTRUCTION AND MAINTENANCE OF PRESENT SOUTH SIDE HIGHWAY (U.S. No. 10) FROM WEST TERMINUS TO POWDER RIVER TERMINUS

(Chargeable against North Route)

15.4 miles of 1934 construction @ $60,000 per mile	$ 924,000
3.5 miles of 1941 construction @ $40,000 per mile	140,000
18.5 miles of 1948-54 construction @ $20,000 per mile	370,000
TOTAL RECONSTRUCTION COST	$1,434,000
ESTIMATED ANNUAL CONSTRUCTION COST	$ 43,455
ESTIMATED ANNUAL MAINTENANCE COST @ $1,000 per MILE FOR 37.4 MILES	37,400
TOTAL ESTIMATED ANNUAL COST FOR RECONSTRUCTION AND MAINTENANCE	$ 80,855

Note: If the South Route were built, it would still be necessary to reconstruct and maintain the portion of U. S. No. 10 serving the bypassed portion of Miles City and vicinity. It is estimated that about $45,000 of the above annual cost should be charged against the South Route under these conditions.

RECONSTRUCTION AND MAINTENANCE OF PRESENT SOUTH SIDE HIGHWAY (U.S.NO. 10) FROM POWDER RIVER TERMINUS TO EASTERN TERMINUS

(Chargeable against North Route)

17.6 miles of 1934 construction @ $60,000 per mile	$1,056,000
ESTIMATED ANNUAL CONSTRUCTION COST	$ 32,000
ESTIMATED ANNUAL MAINTENANCE COST @ $1,000 per MILE FOR 17.6 MILES	17,600
ESTIMATED ANNUAL COST FOR RECONSTRUCTION AND MAINTENANCE	$ 49,600

NOTE: If the South Route were built, it would still be necessary to reconstruct and maintain the portion of U. S. No. 10 serving the bypassed portion of Terry and vicinity. It is estimated that $20,000 of the above annual cost should be charged against the South Route under these conditions.

The following summarizes the total cost and the annual cost chargeable against each of the proposed alternate routes, including supplemental charges for construction, reconstruction and maintenance of other highways required to solve the transportation problem of the general area:

	NORTH ROUTE	SOUTH ROUTE	NORTH-SOUTH COMBINATION
CONSTRUCTION OF INTERSTATE SYSTEM HIGHWAY	$ 9,009,125 291,303*	$10,610,915 321,188*	$11,144,990 336,952 *
CONSTRUCTION OF KINSEY SECONDARY SYSTEM ROAD		1,024,900 31,222*	
RECONSTRUCTION OF U.S. NO. 10 FROM WESTERN TERMINUS TO POWDER RIVER TERMINUS	1,434,000 43,455*	990,000 30,000*	1,434,000 43,455*
RECONSTRUCTION OF U.S. NO. 10 FROM POWDER RIVER TERMINUS TO EASTERN TERMINUS	1,056,000 32,000*	495,000 15,000*	495,000 15,000*
TOTAL CONSTRUCTION AND RECONSTRUCTION COSTS	11,499,125 366,758*	12,095,915 397,410*	13,073,990 395,407*
MAINTENANCE OF INTERSTATE SYSTEM HIGHWAY	87,660*	88,875*	83,955*
MAINTENANCE OF KINSEY SECONDARY SYSTEM ROAD		9,350*	
MAINTENANCE OF U. S. NO. 10 FROM WESTERN TERMINUS TO POWDER RIVER TERMINUS	37,400*	15,000*	37,400*
MAINTENANCE OF U. S. NO. 10 from Powder River Terminus TO EASTERN TERMINUS	17,600*	5,000*	5,000*

* Annual amortized cost

ANNUAL AMORTIZED COSTS

	NORTH ROUTE	SOUTH ROUTE	NORTH-SOUTH COMBINATION
Construction & Reconstruction	366,758	397,410	395,407
Maintenance	142,660	118,225	126,355
TOTAL ANNUAL COST	$ 509,418	$ 515,635	$521,762

Annual Savings in favor of North Route:

Over South Route	$ 6,217
Over North-South Combination	12,344

The foregoing summary table shows that the North Route, with an annual cost of $509,418 would provide the least expensive solution to the problem of serving highway transportation in the area under investigation. The annual cost for the North Route would be $6,217 cheaper than the South Route and $12,344 cheaper than the combination of the North Route and the South Route. It should be pointed out, however, that these savings amount to only 1.22% and 2.42% differential in favor of the North Route. Such a minor differential is not conclusive where so many factors are based on estimates.

SERVICE TO TRAFFIC

As explained in the foreword, two principal components must be analyzed in determining the economic worth of the alternate proposals:

1. The annual cost of constructing and maintaining the highway facilities involved in serving highway transportation in the area of investigation.

2. The annual cost to the highway users, via the alternate proposals, as measured in vehicular operating costs and time savings.

Traffic volume assignments and routings were computed on the basis of traffic statistics and surveys developed by the Planning Survey Division.

The principal source of information consists of an Origin-Destination Survey for Miles City which was conducted during the month of July 1956. In this survey, traffic was stopped at points along the main highways at the edge of the city, and questions were asked concerning the origin and the destination of each trip. The trips were classified by predetermined zones within the city and the direction of movement for those trips which passed through the city without stopping.

On the basis of information obtained from this survey, it is possible to determine the routings, via the alternate highway proposals, for the trips into Miles City and the through trips which would bypass the city. After the trips have been delineated and the lengths measured, the vehicle miles of travel may be computed. These vehicle miles of travel are then multiplied by recommended operating costs and time savings factors in order to determine the total cost of vehicular travel via the different proposals. The actual value of operating cost and time factors is dependent upon an appraisal of such items as class of highway, type of surface, amount of congestion, number of stops, average operating speed, proportion of passenger cars and trucks in the traffic stream, and other factors which affect the movement of traffic.

In addition to the Miles City Origin-Destination Survey, reference was made to traffic counts taken at points on the main highways and other roads and streets in the vicinity.

Since the Miles City survey was conducted at points near the city's edge, there was a substantial amount of traffic of local circulation which would not be able to use the new Interstate highway on either the north line or the south line for the reason that the trips were so short that they would not reach to the Interstate highway. All of these non-Interstate highway trips were eliminated from consideration as not being pertinent to the analysis of the Interstate routes.

After investigating the situation it was estimated that 1,100 trips per day of present traffic on west U. S. No. 10 would use either the North Route or the South Route of the Interstate System for at least a portion of the travel into, out of, through, or beyond Miles City. In addition, it was estimated that 100 vehicles per day of traffic originating in the area on the north side of the river and west of Miles City would be able to use a part of the Interstate highway in the traffic movement.

This total of 1,200 vehicles per day was divided into 1,080 passenger cars and 120 trucks. The trips were divided as follows:

Trips to and from the Central Business District	422 - 35%
Trips to and from other interior zones	267 - 22%
Trips through city without stopping	511 - 43%
TOTALS	1,200 - 100%

A similar analysis was made of traffic moving on U. S. No. 10 East. After segregating the trips which would not use the Interstate highway, it was determined that 900 vehicles per day of the present traffic would use the Interstate highway on either the north or the south line. This total consisted of 756 passenger cars and 144 trucks. The trips were divided as follows:

Trips to and from the Central Business District	389 - 43%
Trips to and from other interior zones	223 - 25%
Trips through city without stopping	288 - 32%
TOTALS	900- 100%

After delineating the trips via each alternate of the Interstate System and connecting roads, measuring the travel distance, and computing the total vehicle miles of travel and the cost per vehicle mile, the following results were obtained for all traffic moving on U. S. No. 10 East and U. S. No. 10 West between the western common terminus and the Powder River common terminus:

	NORTH ROUTE		SOUTH ROUTE	
	Passenger	Trucks	Passenger	Trucks
Average trip length (miles)	28.2	30.3	27.1	29.5
Annual vehicle miles of travel	18,922,695	2,920,730	18,164,225	2,842,620
Total annual operating costs	$1,719,296	$ 793,254	$1,650,592	$772,650
Cost per vehicle mile	$.0909	$.2716	$.0909	$.2718
COMBINED PASSENGER & TRUCK:				
Average trip length	28.5		27.4	
Annual vehicle miles of travel	21,843,425		21,006,845	
Total annual operating costs	$2,512,550		$2,423,242	
Cost per vehicle mile	$.1150		$.1153	
ANNUAL SAVINGS IN FAVOR OF SOUTH ROUTE			$89,308	

The foregoing table shows that the South Route would be most favorable with respect to the service to the traffic moving along present U. S. No. 10 between the western common terminus and the Powder River terminus. Although the cost per vehicle mile of travel would be 0.3 of a mill greater than on the North Route, the overall trip length would be 1.1 mile shorter. Because of the shorter trip length, the total annual vehicle miles of travel to meet the transportation situation would be 836,580 lower than on the North Route. The lesser amount of travel on the South Route would more than offset the higher cost per vehicle mile on this route with the result that the highway users would save $89,308 per year through use of the South Route for the Interstate highway travel between the western terminus and the Powder River terminus.

The shorter trip length for the South Route results because of the fact that about 62% of the trips on present U. S. No. 10 have a destination in Miles City. The South Route provides a more direct line into Miles City than the North Route which is farther removed from the city.

The South Route also provides a more direct and convenient means of movement for the traffic moving between U. S. No. 12, and U. S. No. 212, and the Interstate Highway. This type of traffic would be able to make a direct connection to the South Route of the Interstate highway, but would have to travel considerable distance through Miles City and on Montana No. 22 to reach the Interstate highway on the North Route.

A similar analysis of vehicular movement and operating costs was made for the traffic moving along the second segment of highway, from the Powder River terminus eastward to the Fallon bridge terminus.

Although an origin-destination survey has not been made for the city of Terry, it is possible to estimate the traffic movements on the basis of surveys made for other cities of comparable size. After analyzing the movements and the amount of traffic now using U. S. No. 10 in this vicinity, it was estimated that the total volume and distribution of traffic would amount to the following:

	DAILY TRIPS	PERCENT
INTERSTATE TRAFFIC BETWEEN TERMINI	700	70
INTERSTATE TRAFFIC TO TERRY	100	10
INTERIOR TRAFFIC OF LOCAL ORIGIN	200	20
TOTALS	1,000	100

The North Route, for this segment of the highway, would be located in an area of rough and undeveloped country on the north side of the Yellowstone River. Unlike the western portion of the North Route, there would be very little local development to serve and the Interstate highway would not serve as a substitute for local roads. If the North Route were to be built it would still be necessary to retain present U. S. No. 10 to serve the substantial volumes of traffic of local origin and circulation on the south side of the river.

The advantage to remaining on the north side of the river through this area would lie in the elimination of the need for constructing two bridges - one at the Powder River crossing and another at the Fallon crossing. This route would have the disadvantage, however, that it would require about 4.5 miles of additional travel for the through traffic and about 5.7 miles of additional travel for the Interstate highway travel with origins or destinations in Terry.

The operating costs, via each alternate for combined passenger car and truck travel, were analyzed with the following results.

	NORTH ROUTE	SOUTH ROUTE
Average trip length (miles)	20.7	16.8
Annual vehicle miles of travel	7,548,200	6,142,950
Total annual operating costs	$878,661	$705,673
Cost per vehicle mile	$.1164	$.1149
ANNUAL SAVINGS IN FAVOR OF SOUTH ROUTE		$172,988

To this point, the operating costs for the Interstate highway traffic have been analyzed separately for the segment of highway between the western terminus and the Powder River terminus and for the segment of highway between the Powder River terminus and the terminus east of the Fallon bridge. The combined results for a North Route, a South Route, and a combination North-South Route are shown below:

	NORTH ROUTE	SOUTH ROUTE	NORTH-SOUTH Route
Average trip length (miles)	49.2	44.2	47.3
Annual vehicle miles of travel	29,391,625	27,149,795	28,643,375
Total annual operating costs	$3,391,211	$3,128,915	$ 3,294,188
Cost per vehicle mile	$.1154	$.1152	$.1150
ANNUAL SAVINGS IN FAVOR OF SOUTH ROUTE:			
OVER NORTH ROUTE THROUGHOUT		$262,296	
OVER COMBINATION NORTH-SOUTH ROUTE		165,273	

From the standpoint of the traffic which would use the Interstate highway for all or a portion of the travel between the common terminus west of Miles City and the common terminus east of Fallon, the construction of the South route throughout the entire distance would provide the greatest benefit. It would involve the shortest travel distance, would require less annual travel, and would have the lowest annual operating expenditures on the part of the highway traffic. In comparison with the North Route throughout, the South Route would save $262,296 per year in operating costs. When compared with the combination of a North Route from the western terminus to the Powder River terminus and a South Route from the Powder River terminus to the terminus east of Fallon, the savings in operating costs would amount to $165,273 per year.

As explained in the portion of this report dealing with construction and maintenance costs, it is necessary to consider the entire transportation situation in this corridor in order to make an equitable comparison of the alternate proposals. The construction and maintenance costs were computed on the basis that construction of the North Route would eliminate the need for a Secondary System road to serve the Kinsey area, which would be required if the South Route were to be constructed. On the other hand, construction of the North Route would require that the present U. S. No. 10 highway on the south side of the river be reconstructed to suitable standards to serve the traffic on that side of the river.

The costs of this companion construction were charged against the particular Interstate highway involved, and it is necessary that the benefits accruing from this companion construction be credited to the same Interstate highway proposal. These savings have been computed with the result shown below:

SAVINGS TO TRAFFIC RESULTING FROM:	CREDITED TO		
	NORTH ROUTE	SOUTH ROUTE	NORTH-SOUTH COMBINATION
Construction of Kinsey Road	$40,219 1/	$29,620 2/	$40,219 1/
Reconstruction of present U. S. Highway No. 10	72,961	38,975	65,161
	$113,180	$ 68,595	$105,380

ANNUAL SAVINGS IN FAVOR OF NORTH ROUTE:	
OVER SOUTH ROUTE	$ 44,585
OVER NORTH-SOUTH COMBINATION	$ 7,800

1/ Construction to Interstate standards

2/ Construction to Secondary Standards

In combining the savings to traffic resulting from the Interstate construction and the savings to traffic resulting from the companion construction, the following results are obtained:

COMPARISON OF NORTH ROUTE THROUGHOUT WITH SOUTH ROUTE THROUGHOUT

TYPE OF TRAFFIC	ANNUAL SAVINGS TO TRAFFIC IN FAVOR OF NORTH ROUTE	ANNUAL SAVINGS TO TRAFFIC IN FAVOR OF SOUTH ROUTE
Interstate highway from western terminus to Powder River terminus		$89,308
Interstate highway from Powder River terminus to eastern terminus		172,988
Subtotal of Interstate traffic		$262,296
Originating in Kinsey area	$10,599	
Local service on U. S. No. 10	33,986	
Subtotal of companion traffic	$44,585	
NET SAVINGS IN FAVOR OF SOUTH ROUTE		$217,711

A similar comparison of the South Route throughout with a combination North-South Route produces the following results:

COMPARISON OF SOUTH ROUTE THROUGHOUT WITH COMBINATION NORTH-SOUTH ROUTE

TYPE OF TRAFFIC	ANNUAL SAVINGS TO TRAFFIC IN FAVOR OF NORTH-SOUTH ROUTE	ANNUAL SAVINGS TO TRAFFIC IN FAVOR OF SOUTH ROUTE
Interstate highway from western terminus to Powder River terminus		$ 89,308
Interstate highway from Powder River terminus to eastern terminus	$172,988	172,988
Subtotal of Interstate traffic	$172,988	$262,296
Originating in Kinsey area	10,599	
Local service on U. S. No. 10	26,186	
Subtotal of companion traffic	$ 36,785	
NET SAVINGS IN FAVOR OF SOUTH ROUTE		$ 52,523

This analysis shows that the proposal of constructing the Interstate highway throughout on the south side of the river and constructing a Secondary road to serve the Kinsey area would provide the greatest overall benefit to traffic. This proposal would save the traffic about $217,000 per year in operating costs in comparison with the alternate proposal of constructing the Interstate highway throughout on the north side of the river and reconstructing present U. S. Highway No. 10 to proper standards.

A similar comparison with the proposal of constructing the Interstate highway on the north side of the river between the western terminus and the Powder River crossing and on the south side to the Fallon crossing shows that the construction of the route on the south side of the river throughout the entire length would also be most beneficial in that it would save about $53,000 per year in operating costs for the traffic.

CONCLUSIONS

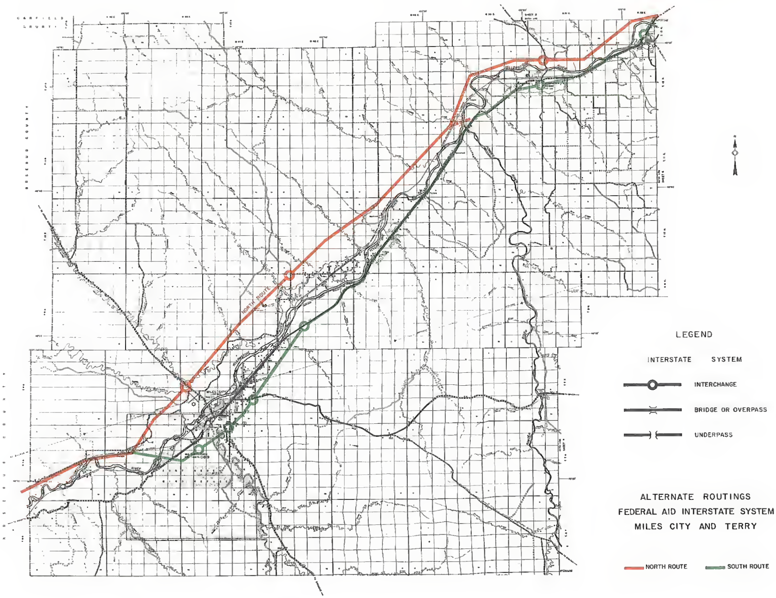
In the final analysis, the annual savings in operating costs for the traffic must be compared with the annual costs of constructing and maintaining the alternate routes in order to arrive at a composite decision concerning the merits of the routes.

The figures developed from this analysis show that the construction of the Interstate highway through the area south of the river and the construction of a Secondary road to serve the Kinsey area would save the traffic about $217,000 per year in operating costs as compared with an alternate proposal of constructing the Interstate highway through the area north of the river and the reconstruction to proper standards of U. S. Highway No. 10 to serve the traffic remaining on the south side of the river.

A comparison of construction and maintenance costs for the two proposals shows that the South Route proposal would cost about $6,000 more per year to construct and maintain over the estimated service life of the highways. In combining the savings to traffic of $217,000 per year for the South Route proposal with the extra construction and maintenance cost of $6,000 per year, the net result would be $211,000 savings per year in favor of the South Route proposal.

In comparing the South Route proposal with the combination of a North-South Route, the annual savings to traffic of $53,000 per year in favor of the South Route would be offset by additional construction and maintenance costs of $6,000 per year, with the result that the net savings would amount to $47,000 per year in favor of the South Route.

THE RESULTS OF THIS ANALYSIS FAVOR THE PROPOSAL OF CONSTRUCTING THE INTERSTATE HIGHWAY ON THE SOUTH SIDE OF THE YELLOWSTONE RIVER FROM A POINT WEST OF MILES CITY TO ANOTHER POINT EAST OF FALLON. THIS PROPOSAL WOULD ALSO INVOLVE THE CONSTRUCTION OF A SECONDARY ROAD TO SERVE THE KINSEY AREA.



ALTERNATE ROUTINGS
FEDERAL AID INTERSTATE SYSTEM
MILES CITY AND TERRY